Precious Plants!



**Precious Plants!**

* Plant Portraits
* Essential Sunlight for Plant Growth
* Plant Biodiversity
* Spectacular Seeds
* How Big Will a Plant Get?
* Our Impact on Plants



**Rural Science Education Program**

A partnership between Oregon State University

and rural K-12 schools

**Designers, editors, and contributors**

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**Rural Science Education Program**

The Rural Science Education Program is a partnership between Oregon State University and local rural K-12 schools for enrichment of the science curriculum with hands-on science activities that encourage critical thinking in K-12 students about the impacts of agriculture on the environment and the implications of advanced scientific research on human lives.

**For More Information**

For more information about the Rural Science Education Program, contact Sujaya Rao (phone: (541) 737-9038; e-mail: [sujaya@oregonstate.edu](mailto:sujaya@oregonstate.edu); fax: (541) 737-5725.

**Precious Plants!**

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*Designed by …*

**Description**

This unit describes a 2nd grade class experiment that is conducted both in the classroom and at a field site either at the school or in the community. The field site should be a place where native plants are currently growing, and where students can add more native plants to the area. This project will lead students through the discovery of native plants and animals. Students will determine the most suitable place to plant a native plant based on their experiments. At the end of the unit, students will add a new native plant to their school community.

**Student Outcomes/Objectives**

Students will be able to:

* Understand and define the terms native, non-native and invasive.
* Describe and label the parts of a plant.
* Understand and list the physical needs of plants (water, sunlight, nutrients).
* Conduct a week long experiment looking at light needs of plants.
* Record data for experiment.
* Understand the process of pollination.
* Recognize that many factors assist with pollination (wind, rain, animals).
* Effectively work in small groups to complete a biodiversity study.
* Record and analyze data for biodiversity study.
* Understand the differences between birds, mammals, reptiles, amphibians and invertebrates.

**Oregon Standards**

*Level: 2nd Grade*

*Subject: Science*

*Strand: Scientific Inquiry*

* Make observations. Ask questions or form hypotheses based on those observations, which can be explored through scientific investigations.
* Collect, organize, and summarize data from investigations.
* Summarize, analyze, and interpret data from investigations.

**Time Estimate**

This project was done over seven 50-minute class periods. Each class period was separated by a week’s worth of time.

**Materials (see individual lessons for detailed material lists)**

* A field site with native plants already growing there (ideally this will be a site that more plants can added in the future, following this unit)
* Plants for demonstration (a pansy, bromeliad and succulent were used in this lesson)
* Seeds and fruits (sunflower seeds, grapes, strawberries, apples, oranges, and avocadoes were used in this lesson)
* Plant for photosensitivity experiment
* Large cardboard box (covered with black paper) with small-medium sized round hole cut out of one side
* Watering container
* Camera (optional)
* 3 ring binder
* Clipboards
* *Loupe* lenses or other magnifying lenses
* Hula hoops
* Native plant to add to garden
* Shovel
* One adult volunteer/aide

**Worksheets**

* Daily Journals
* Plant Portraits Worksheet
* All About Plants packet
* Essential Sunlight: A Phototropism Experiment Data Sheet
* Sign-Up Sheet for Essential Sunlight: A Phototropism Experiment
* Plant Biodiversity Worksheet
* Plant Review packet
* Sensational Seeds Worksheet
* My Growing Grass Worksheet
* My Impact on Plants Worksheet

**Lesson Plans**

* Plant Portraits
* Essential Sunlight for Plant Growth
* Plant Biodiversity
* Spectacular Seeds
* How Big Will A Plant Get?
* Our Impact on Plants

**Vocabulary**

* Native plant
* Non-native plant
* Invasive plant
* Photosynthesis
* Pollination
* Biodiversity
* Beneficial
* Pest

**Background Information**

Students should have some background knowledge about what a native and invasive plant is. Students should also be familiar with the needs of plants. They should be familiar with their school’s “outside area”, or the field site for the project. Students should have at least some experience asking scientific questions, making and recording observations, and writing procedures.

**Extensions/Resources**

The school that participated in this unit was a 4-H Wildlife Steward School. Their native garden had been well established by school members. As a conclusion to this unit, the students could have presented their findings during the 4-H Wildlife Steward Summit, which is held each year. This would have been a good end-point for this experiment if students had prepared a poster to present to the community and other schools in the county. If this presentation seems too large, it could be replaced with a presentation to another class or to their principle, librarian, or other figure in the school. Alternatively, if the field site is not on the school property, students can present their project to members of the community or at a town meeting.

**Precious Plants – Day #1**

**PLANT PORTRAITS**

**Objectives**

* Students will be able to describe and draw the parts of a plant.
* Students will understand the needs of a plant.
* Students will understand that all plants have the same needs, although they may look very different.

**Materials**

* Examples of plants. Have several examples of each plant so that groups can pass them around. Good examples are strawberry plants, bromeliads, pansies, succulents, etc.
* *Loupe* lenses or other magnifying lenses so that each pair of students has one (preferable one per student)
* Paper plates (to lay the plants on so students can see the roots)
* “Plant Portraits” worksheet – one for each student
* Crayons
* “Daily Journal” worksheet – one for each student
* “Let’s Learn About Plants” packets – one for each student
* One 3-ring class binder to organize all work from the project

**Introduction (10 minutes)**

Ask students “*What are the parts of a plant?”*. As students provide answers, write them on the board. Tell students that today they are going to look at different plant types and draw them. They should make certain to draw the plants as best as they can, as this will allow you to refer back to their drawings during the discussion later today. Bring out the plants. Introduce each of them, pointing out the plant parts that are written on the board. Once all the plants have been introduced, pass out the “Plant Portraits” worksheets.

**Student Directions/ Demonstrations of Techniques (5 minutes)**

Pass out *Loupe* lenses to each student. Distribute the plants to groups, remember to pull the plant out of its container and set it on the plate so students can observe the roots. Several students can observe and draw the same plant at the same time.

**Activity Procedures (20 minutes)**

Ask students to look at the plants in front of them and draw what they see. Remind students to label the parts of the plants as they draw them. Ask students to be gentle with the plants, especially their roots, as we do not want to harm them.

**Closing Activity/Assessment (10 minutes)**

Ask the following guiding questions to get the discussion started. *“Are all of the plants you drew today the same?”*. *“What makes them different?”*. *“Why do you think the plants are different?”*. As students provide suggestions write them on the board. Look for answers such as *“they can make more food”*, *“they will not have to compete with other plants for food”*, etc.

Ask students “*What is a native plant?”*. Use their answers to discuss the differences between native and invasive plants. Include why it is important to encourage native plants and discourage invasive plants.

Make certain all students were able to get at least one plant drawn. They can come back to this activity if time allows during their free periods.

Inform students that *“During the next class period, we are going to look at what plants need to grow.”*

**Clean-up (5 minutes)**

Collect plants and plates. Place the plants back in their original containers (keep these plants so that students can refer back to them if needed to complete their drawings). Collect hand lenses, and worksheets. Worksheets can be kept in a class binder for all work during this unit.

As items are being collected, have a student pass out the “Daily Journal” worksheets. Allow students to work on these for the remainder of the time. Once completed, collect them and place in class binder.

**Miscellaneous**

\*\*Pass out *Let’s Learn About Plants* Packet. These worksheets can be worked on during any free time for the next week. They will help to keep the plant terms on the minds of your young scientists.

**PLANT PORTRAITS** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

Use the boxes below to draw the plants as you observe them.

Remember to label the plant parts.

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| --- | --- |
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| Plant Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Plant Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Are all the plants the same? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

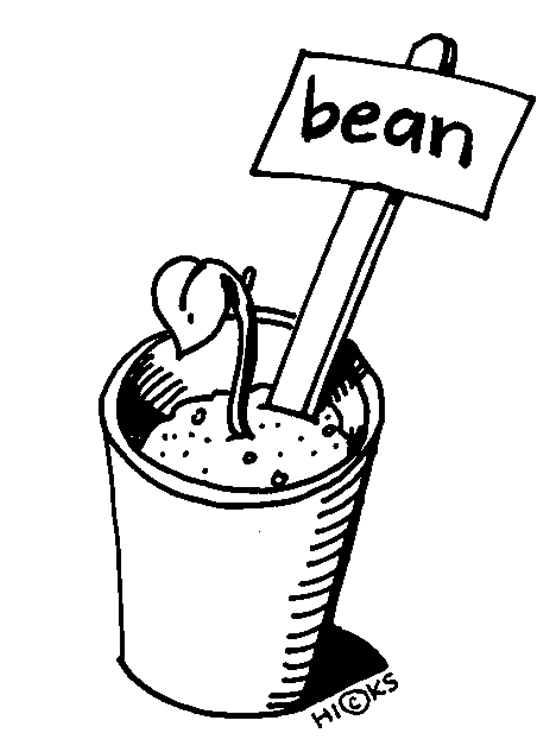
What makes them different or similar? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Let’s Learn about PLANTS



Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Puzzling Plants



Find the following words in the puzzle.

They may go up, down or sideways.

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| l | n | j | s | e | e | d | s | j | t | m | d | f | k | g |
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bats

bees

birds

bud

flower

leaf

nectar

needle

photosynthesis

plant

pollen

seeds

stem

sunlight

thorn

water

**Wild Words**



There are 10 misspelled words in the following passage. Can you find them all?

Write the correct spelling of the words on the

lines at the bottom of the page.

Plants are living things. Can you name a type of plant or flour? Sure you can, what about tulips, roses, grass, and all types of treesz. All plants have a stim and leaves, although they may look different.

You may be wondering what plants eat. It is very simple, they use waterr, sunlight and carbon dioxide (which is what you breathe out) to make suger. That is what plants use to groww and make beautiful flowers! There are a few plants that capture insects for food such as the Venus fli trap.

Plants can liv almost everywhere. They can live in the forests, meadows and dezerts. Plants even live in the ocean! As you can see plantz are very unique and very fascinating.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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10.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Scrambled Words

Can you help unscramble the following words?

Write the correct spelling of the word on the line.

If you get stuck, check the word bank for help.

1. \_\_\_\_\_\_\_\_\_\_ A ptlna is an interesting thing.
2. \_\_\_\_\_\_\_\_\_\_ They are found in all types of tbaitash.
3. \_\_\_\_\_\_\_\_\_\_ Large, green sveael collect sunlight.
4. \_\_\_\_\_\_\_\_\_\_ Thick mtess help them grow tall.
5. \_\_\_\_\_\_\_\_\_\_ Strong otosr hold the plant in the ground.
6. \_\_\_\_\_\_\_\_\_\_ Bright, colorful flowers attract mianlas.
7. \_\_\_\_\_\_\_\_\_\_ Pollen is collected by sebe.
8. \_\_\_\_\_\_\_\_\_\_ Seeds are eaten by dibrs.
9. \_\_\_\_\_\_\_\_\_\_ reiresB are eaten by many mammals.
10. \_\_\_\_\_\_\_\_\_ tsBa love white flowers.

**Word Bank:**

plant Bats habitats bees birds

leaves roots stems animals Berries



Plant Cross Word Puzzle

Using the clues below, place the answers in the correct spaces.

If you need help, look in the word bank.

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**Word Bank:**

ocean pollen flowers paper

desert stem leaves photosynthesis

tree birds spider

Across:

1. the process plants use to make food

2. trees are used to make this product that we write on

3. this type of plant grows tall and has a wooden trunk

Down:

1. bees collect this from flowers

2. where sea kelp grows

3. the colorful parts of plants are known as

4. the habitat where you would find a cactus

5. big, green structures that plants use to capture sunlight

6. this helps to hold the plant straight and tall

7. these animals eat berries and build their nests in plants

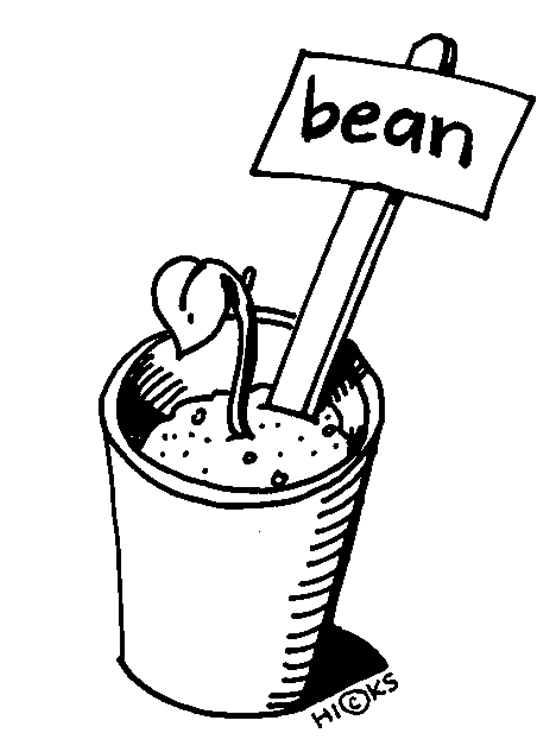
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Let’s Learn about PLANTS



Name: TEACHER COPY!

Puzzling Plants



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1. flower
2. trees
3. stem
4. water
5. sugar
6. grow
7. fly
8. live
9. deserts

10.plants

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**Word Bank:**

ocean pollen flowers paper

desert stem leaves photosynthesis

tree birds spider

Across:

1. the process plants use to make food photosynthesis

2. trees are used to make this product that we write on paper

3. this type of plant grows tall and has a wooden trunk tree

Down:

1. bees collect this from flowers pollen

2. where sea kelp grows ocean

3. the colorful parts of plants are known as flowers

4. the habitat where you would find a cactus desert

5. big, green structures that plants use to capture sunlight leaves

6. this helps to hold the plant straight and tall stem

7. these animals eat berries and build their nests in plants birds

8. eight legged animal that uses camouflage to hide in flowers spider

Plants are all around us and new species are still being discovered. Imagine that you are in the rain forest and have found a plant that you have never seen before.

Describe the plant.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

Daily Journal

Daily Journal



**Precious Plants – Day #2**

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

**ESSENTIAL SUNLIGHT FOR PLANT GROWTH**

**Objectives**

* Students will be able to make hypothesis concerning the phototropism experiment.
* Students will be responsible for taking care of phototropism plant for the remainder of the unit.
* Students will observe plant and record data for phototropism experiment.

**Materials**

* Plant for phototropism experiment (the best type of plant for this experiment is some type of vine, one that can grow quickly)
* Water container
* Box (large enough to completely cover plant)
* Black construction paper or butcher paper (to cover the box)
* Metal coffee can (or other circular container)
* Scissors
* “Essential Sunlight: A Phototropism Experiment” Data Sheet – one per student
* “Teacher’s Guide to Essential Sunlight: A Phototropism Experiment”
* “Sign Up Sheet” (for roles)
* A camera (optional)
* “Daily Journal” worksheet – one for each student
* Class binder

**Introduction (15 minutes)**

Ask students “What do plants need to survive?”. Expect answers such as water, food, sunlight, fertilizer, etc. Today we want to focus on sunlight as our main goal. Ask “What do plants get from sunlight?”. Most will answer that plants receive food from sunlight. “Have you ever heard of the word photosynthesis?”. Most students will answer yes, but after asking “What does it mean?” you will see that students are unclear on this topic. Discuss with students how the process of photosynthesis all plants to turn sunlight, water and carbon dioxide into food. Remind students that carbon dioxide is what we exhale. “What would happen if a plant could not obtain sunlight?”

**Student Directions/Demonstrations of Techniques (5 minutes)**

Pass out “Essential Sunlight: A Phototropism Experiment” worksheets. Ask “What would happen if a plant could not obtain sunlight?” Have student’s hypothesis what would happen and fill in their hypothesis on their worksheet, so we can look back at the end of the unit.

**Activity Procedures (30 minutes)**

Tell students that they are going to set up a phototropism experiment. In this experiment, we are looking at what happens when a plant can only get a small amount of sunlight. Have students work as a class to completely cover the box in black paper. There should be no portion of the box uncovered. Ask students “*Why do we need to cover the box in black paper?”*. Lead students to the idea that black absorbs light, not allowing it to reach the plant inside the box. Have students trace the coffee can on one side of the box. Next, the teacher will cut out the circle drawn by students. Ask students *“Why is this circle important?”*. The students will guess that it is so the plant can get sunlight. Make sure they understand that if the plant receives no light, it will die.

Place the plant in a sunny area where it will not be disturbed (near a window in the back of a classroom works well for this). Place the black box over the plant. Have student’s complete question #2 on their worksheet. They can draw or describe what the set-up looks like.

To go over the protocol for this experiment, refer to “Teacher’s Guide to Essential Sunlight: A Phototropism Experiment”. Make sure students are clear on what is going to happen. They are only to remove the box two times per week to water the plant. It is best to limit the amount of water given to ½ cup per watering, so as not to over water the plant (making a large mess in your classroom). The included sign up sheet will help keep roles straight.

**Closing Activity/Assessments (5 minutes)**

Review the roles for students. Go over the worksheet, making sure each student wrote down their hypothesis. Inform students that they will complete the worksheet during the following weeks as data is collected. Pass out “Daily Journal” Worksheet, allow student to work until the end of the period.

**Clean-up (5 minutes)**

Collect worksheets and place in class binder. Clean up any paper, placing it in the recycling bin.

**ESSENTIAL SUNLIGHT:** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**A Phototropism Experiment** Date: \_\_\_\_\_\_\_\_\_\_

1. My Hypothesis is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. My observations from the first day of our experiment:  *Use the box to draw what you see or write it here.*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Use the data table on the back of this worksheet to record your data.

**Remember:**

Look at the sign up sheet to see what your duty is!

3. Record your data here:

|  |  |
| --- | --- |
| **Date** | **Observations** |
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**Teacher’s Guide to**

**Essential Sunlight: A Phototropism Experiment**

**Set-Up (students can do most of this)**

1. Cover box with black paper.
2. Cut out circle on one side.
3. Place plant in sunny, undisturbed area of room.
4. Place box over plant with circle facing the sunniest spot.

**Roles**

* + There are two main roles for this experiment
  + Optical Observers: responsible for observing the plant and writing their observations on the board for the entire class to record on their data sheets.
  + Watchful Waterers: responsible for carefully measuring ½ cup of water and watering plant after observations are made by the Optical Observers.
  + Dependent upon class size, these roles can be done individually or in pairs.

**Other Information**

* This experiment will run from today until the last day of the unit, therefore there are plenty of chances for each person to take part in the data collection.
* As a class, decide which two days of the week you will be observing the plant (Monday, Friday works the best).
* If the plant begins to die, it may be receiving too much or too little water. Adjust the watering amount as needed ( ½ cup is adequate for many plant species, but it is always a good idea to check your particular species water preferences).

**Sign-Up Sheet for Essential Sunlight: A Phototropism Experiment**

|  |  |  |
| --- | --- | --- |
| **Date** | **Optical Observers** | **Watchful Waterers** |
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Daily Journal

If you were a plant (any type that you can imagine) which habitat would you prefer to live in? Why is that so?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_

Daily Journal

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_

**Precious Plants – Day #3**



**PLANT BIODIVERSITY**

**Objectives**

* Students will be able to collect and analyze data that is collected in the field.
* Students will decide if there is a “best fit” area for plants to grow in.
* Students will understand why plants grow better if they are not crowded.

**Materials**

* A field site with native plants already growing there
* Hula hoops (enough for students to work in pairs)
* Clipboards
* “Plant Biodiversity Worksheet” – one for each student
* “Daily Journal” Worksheet – one for each student
* “Plant Review” packets – one for each student
* Class binder

**Introduction for students (5 minutes)**

Begin by asking students if they have any interesting observations from their “Essential Sunlight: A Phototropism Experiment” that they wish to share with you. Inform students that today we are going to be looking at plant biodiversity. Ask *“Do you know what biodiversity means?”*. Some students may mention that it means that things are different. This is correct. Biodiversity looks at how many different organisms are in the same area. For this experiment, we are going to go outside and look at the biodiversity in several different spots.

**Student Directions/Demonstrations of Techniques (5 minutes)**

Pass out “Plant Biodiversity” worksheets and clipboards. Remind students to fill in their names and the date. Have students find a partner. *While working in partners, we are going outside and collect our data. Once we get outside, you are your partner will lay a hula hoop down in an area that has plants. There can be a lot of plants or just a few. Gently lay your hula hoop down, which we will use to mark the boundaries of our area. Begin filling out your worksheet, based on what you are looking at inside the hula hoop. If you cannot answer one of the questions, because there are no flowers inside your hula hoop, you can skip it. Make certain to be gentle with the plants that you are observing. DO NOT pull any of them out of the ground.*

**Activity Procedures (25 minutes)**

Have students line up in pairs. Lead students to the outside area. Give each pair a hula hoop. Remind students that they are to remain in this area at all times, no wandering off. Allow 20 minutes for students to collect their data. Walk around and make sure students are not stuck on a question. Once students are finished, have each pair bring their hula hoop to a designated spot. Lead students back inside, making a brief stop for them to wash their hands.

**Closing Activity/Assessments (10 minutes)**

Working with their partner, have students look at their data. Go through the worksheet with students, asking each pair what they found. As a class, determine if plants grow better in areas with a lot or a little biodiversity. Students will see that most plants like to grow in areas by themselves, if there are too many plants in one area, they will all grow small, if they grow at all. Pass out “Daily Journal” and allow students to work until the period ends.

**Clean-up (5 minutes)**

Collect worksheets and put in class binder. Make sure all hula hoops are accounted for. If students did not wash their hands, have them do so now.

**Miscellaneous**

\*\*Pass out the *Plant Review* Packet. These worksheets can be worked on during any free time for the next week. They will help to review the plant terms that your young scientists have learned.

To make packets: copy the two pages front to back, resulting in one piece of paper.

**Plant Biodiversity** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Data Sheet** Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Draw what you see

inside your hula

hoop here.

1. Are the plants in your area similar or different? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Do you see any plants with flowers? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Draw the flower.
4. Do you see any insects moving around the flowers? \_\_\_\_\_\_\_\_\_\_
5. What do you think they are they doing? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

****

****

root

stem

fruit

seed

leaf

flower

TEACHER COPY!

**Precious Plants – Day #4**

Draw you (as a plant) in your preferred habitat. Remember to include your stem, leaves and flowers.

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

Daily Journal

Draw you (as a plant) and your adaptations to compete with other plants.

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

Daily Journal

**SENSATIONAL SEEDS**

**Objectives**

* Students will understand the role of seeds in plant reproduction.
* Students will understand that there are many ways for seeds to get around.
* Students will understand that pollination must occur for plants to reproduce.

**Materials**

* Examples of seeds (some examples could include a strawberries, grapes, cherries, oranges, apples, avocadoes, sunflower seeds, peanuts, etc.) \*Use caution if any students have allergies to peanuts!
* Plates (to lay the seeds on)
* *Loupe* lenses or other magnifying lenses so that each pair of students has one (preferable one per student)
* Napkins
* “Sensational Seeds” Worksheet – one per student
* “Daily Journal” Worksheet – one per student
* Class Binder

**Introduction for students (5 minutes)**

Ask students “Have you ever eaten a seed?”. Most students will say yes. If so, ask them “What type of seed did you eat?”. This will begin the discussion of Sensational Seeds. Lead students to the idea that all plants have seeds and that they use these to produce more seeds.

**Student Directions/Demonstrations of Techniques (5 minutes)**

Bring out the seed examples. Before handing them out, go over the correct way to observe objects. Students must be careful when picking them up, we do not want to smash the delicate seeds. Split the seeds among the groups (this is easiest if students are working in groups, based on their seating arrangements, but can be modified to fit all classrooms). Pass out “Sensational Seeds” worksheets.

**Activity Procedures (25 minutes)**

Allow 25 minutes for students to work on their worksheets. Walk around the room, making sure that students are on task and are not destroying the seeds so that others will not be able to view them. Remind students to look, smell and touch the seeds, but do not taste them!

**Closing Activity/ Assessments (10 minutes)**

Review the worksheets with students. Make sure that students understood what they were looking at. Quickly remind students that seeds are the way plants reproduce. Answer any questions that the students may have. Pass out “Daily Journal” worksheets. As students finish cleaning up, they may work on their journals.

**Clean-up (5 minutes)**

Collect worksheets and place in binder. Have students bring seeds and plates to a designated table. Dispose of seeds. Wash hands, no matter if nothing was touched.

**SENSATIONAL** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**SEEDS** Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

Use the boxes below to draw the seeds that you observe.

|  |  |
| --- | --- |
| Seed Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Seed Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Seed Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Seed Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

Describe one difference you noticed between the seeds. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Precious Plants – Day #5**



**HOW BIG WILL A PLANT GROW?**

**Objectives**

* Students will be able to record data for their grass over a weeklong period.
* Students will graph their recorded measures.
* Students will understand that plants require sunlight, water and food to survive.

**Materials**

* Grass seeds
* Small containers with lids (disposable plastic containers can be found in many stores)
* Several colors of permanent markers
* Two large spoons
* Two small spoons (plastic teaspoons work perfectly)
* Potting soil (1 medium sized bag should provide plenty for one class)
* An outside area where making a mess is not a concern
* “My Growing Grass” data sheet – one for each student
* “Daily Journal” worksheet – one for each student

**Introduction for students (5 minutes)**

Begin by reviewing what students have learned so far, the needs of plants and what their seeds are for. Inform students that today they are going to plant their own seeds that they will be responsible for. After the seeds are planted today, students will take the containers home and record their data. This is an independent assignment.

**Student Directions/Demonstrations of Techniques (10 minutes)**

Hand out small containers (not lids). Have students decorate the cups using the permanent markers. Once cups are decorated sent students to the outside area (this works best if it is right outside the classroom door).

**Activity Procedures (20 minutes)**

There, they will scoop one spoonful of potting soil into their containers. They will then place a plastic teaspoon full of seed in their container. Have students pat the seeds gently into the soil. Next, they will add one more scoop of potting soil. Press this down gently. DO NOT WATER the plants. Once students have their seeds planted, hand them a top which they can place on their container FIRMLY. After this is done, have students collect a copy of the “My Growing Grass” data sheet. If some students get done early, have them complete any worksheets or journals from previous lessons that they have not finished.

**Closing Activity/ Assessments (10 minutes)**

Ask students “What do you think will happen with your grass seeds?”. Most will understand that they will begin to grow. Remind students that they will need to water their plants once they get home. The best way to water these seeds are to put a small amount of water in your container and let it soak in. If the soil is moist (wet) when you touch it, you have the correct amount of water. If it is still dry, add a little more. Be careful not to add too much water or your seeds will not grow. Check for any other questions. Pass out “Daily Journal” worksheets and allow students to work until the period ends.

**Clean-up (5 minutes)**

Collect all worksheets and place in binder. Have students wash hands. Make sure lids are on the students containers tightly!

**MY GROWING** Your Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**GRASS** Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

1. What do you think will happen to your seeds? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Take your seed container home today. Put it in a **sunny spot** and **remove the lid**. If you leave the lid on the plants will not grow.

Water it as discussed during class:

If soil is dry -> add a little water.

If soil is wet -> do not add water.

**Data Table:**

Record your observations for 7 days in this table.

Some questions to think about: Is your plant growing?

Is your plant not growing?

Are there a lot of plants growing?

Are there only a few plants growing?

|  |  |  |
| --- | --- | --- |
| **Day #** | **Date** | **Observations** |
| 1 |  | Seeds planted today! |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |

**Return this to school once 7 days has passed!**

**Precious Plants – Day #6**



**OUR IMPACT ON PLANTS**

**Objectives**

* Students will understand ways in which we harm or help plants.
* Students will be able to list the needs of a plant.
* Students will understand how to change our actions to help save plants.
* Students will refer to the data collected from “Essential Sunlight: A Phototropism Experiment” to determine if too little sunshine harmed the plant.

**Materials**

* “Our Impact” worksheet – one for each student
* Clipboards
* A native plant to plant in the native garden (optional)
* A shovel (optional)
* “Daily Journal” worksheet – one for each student

**Introduction for students (10 minutes)**

Ask students “What have you learned about plants so far?” As they provide answers, write them on the board. Bring up any points that the students do not mention. Tell them *“Today we are going to determine what impacts humans have on plants. We are also going to finish our unit by planting a plant in our native garden”* (this last step is optional). Ask students *“Are there any things that we, as humans, do that impact plants?*”. List student answers on the board

**Student Directions/Demonstrations of Techniques (5 minutes)**

Pass out “My Impact On Plants” worksheets. Have students collect a clipboard as they line up to head outside.

**Activity Procedures (25 minutes)**

Take a walking tour of your school (inside and outside) looking for ways in which we impact plants. Have students complete their worksheets as you walk around. End your tour near the native garden. At this point have students pick an area in which to plant their plant (one plant for the entire class). This area needs to encompass all of the plant needs (sunlight, water and good soil). This area may have already been designated by someone, but still let students look at the area and determine if it is a good location. After plant is planted, have students line up to head back inside. Make sure students wash their hands before having a seat.

**Closing Activity/Assessments (5 minutes)**

As a class, discuss what you saw. “Do we affect plants?” Have students voice their opinions. “How can we help plants?” Have students volunteer ways in which we can help plants. Remind students “We can each do one simple thing to help plants!”

**Clean-up (5 minutes)**

Collect all worksheets and place in binder (remind students to turn in any worksheets or journals that they still have).

**MY IMPACT**  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ON PLANTS** Date: \_\_\_\_\_\_\_\_\_\_\_\_\_

1. What kind of impacts do you see on your School Tour?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. In which area is this impact the greatest? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Why do you think this is true \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What can we do to decrease this impact? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sketch the area in which your

class plant is being planted.

\*\*What do you think the plant you are planting will look like if you came back and looked at in 5 years? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_